

Unit 2 – Community Ecology (Ch. 3) & Nature's Recycling Programs (Ch. 4)

Chapter 3.1 - Energy Flow in Ecosystems

1. _____ and _____ are the two main factors that largely determine the distribution of life in the biosphere.
2. Long-term weather patterns are largely affected by their location on the _____; especially important are the factors of _____ and _____.
3. Why is the equator warmer than the northern and southern latitudes?
4. Why do we experience seasons in the northern and southern regions of the globe? Explain why it is summer in the northern regions while it is winter in the southern regions.
5. Wind patterns help drive the movement of _____ which in turn are involved in circulating heat. The ocean has a greater _____ capacity than land, so it releases absorbed _____ at a slower rate.
6. Climatographs show the monthly changes in _____ and _____ throughout a year.
7. Areas on Earth that have similar abiotic and biotic factors are called _____.
8. What are the eight major biomes found on Earth?

9. Name and describe the location, climate, physical features, and the plant and animal adaptations of the tundra biome found in Canada.

10. Name and describe the location, climate, physical features, and the plant and animal adaptations of the boreal forest biome found in Canada.

11. Name and describe the location, climate, physical features, and the plant and animal adaptations of the temperate deciduous forest biome found in Canada.

12. Name and describe the location, climate, physical features, and the plant and animal adaptations of the temperate rainforest biome found in Canada.

13. Name and describe the location, climate, physical features, and the plant and animal adaptations of the temperate grassland biome found in Canada.

14. Name and describe the location, climate, physical features, and the plant and animal adaptations of the cold desert biome found in Canada.

15. Name and describe the location, climate, physical features, and the plant and animal adaptations of the permanent ice (polar ice) biome found in Canada.

Chapter 3.2 - Adapting to the Environment

1. An _____ is any genetic trait that improves an organism's chance of surviving and reproducing. The process that favours the survival of organisms with better adapted traits to an environment is known as _____.
2. Natural selection is also involved in _____ cycles. The _____ predators at capturing prey will have a better chance at surviving.
3. Name two adaptations that some predators have.
4. Prey, like predators, also can have _____ that helps them blend and hide in the environment. Prey, like skunks, can also have _____ mechanisms that help them defend against their predators.
5. What is mimicry?

6. Predator and prey species may adapt to each other's _____. This is sometimes referred to as _____.
7. The variety of organisms within an ecosystem is known as _____. It is closely linked to _____, which is a measure of the available energy provided by the producers in an ecosystem.
8. Define the terms extinction and extirpation.
9. What is a keystone species?
10. Explain how otters are a keystone species.

Chapter 3.3 - Community Interaction

1. What does the niche of an organism describe?
2. _____ describes what occurs when two organisms make use of the same resources in the same _____. _____ is the name used when it occurs between different species. _____ is competition between members of the same species. This type of competition is usually more _____ as the organisms often have similar requirements.

3. What is resource partitioning? Provide an example.

4. When species adapt differently to change in an environment, it is called _____. Over time, _____ drives this process and it allows species to adapt to different environments, often forming new species. As the number of individuals within a species increase in a specific trait, we observe _____.

5. A _____ is a species that is introduced into an area where it is not already a native species. These types of species often _____ existing native species for a particular niche. _____ are greatly responsible for the introduction of many foreign species.

6. British Columbia is home to _____ foreign bird species, with the most successful being the European _____.

7. _____ is the gradual change in the types of plants that represent the structure of a community. The first species to arrive and colonize a new environment is called a _____.

8. What is the difference between primary succession and secondary succession?

Chapter 4.1 - Cycling of Organic and Inorganic Matter

1. What is the difference between organic and inorganic matter? Where do we typically find each type of compound?

2. The two most important chemical processes that occur on Earth are _____ and _____.
3. Photosynthesis occurs when plants use the _____ energy to convert carbon dioxide and water into _____ and oxygen. This process allows other organisms to obtain energy when they _____ plants.
4. _____ is the reaction between carbohydrates and _____ that produces _____, carbon dioxide and _____.
5. Explain how Priestly's second experiment showed that plants need animals, and that animals need plants.

Chapter 4.2 - The Carbon Cycle

1. There are many _____ compounds that we use in our bodies. _____ are carbon compounds that organisms consume to gain useable _____. _____ are carbon molecules that form structural parts of organisms and control body functions. _____ are carbon compounds that serve as long-term storage of energy and provide insulation against heat loss.
2. _____ store and release carbon slowly. If these reservoirs absorb more carbon than they release, they are called _____.
3. In what ways does carbon naturally cycle around the Earth?

4. Write out the photosynthesis reaction.
5. Write out the cellular respiration reaction.
6. What human activities cause carbon to cycle on Earth?
7. _____ trap and absorb heat from the Sun in the atmosphere. This results in the _____. Two carbon-containing greenhouse gases are _____ and _____.
8. What human activities lead to increases in carbon dioxide and methane in our atmosphere?
9. The air we breathe is made up of approximately _____ nitrogen and 21% _____.
10. Where else on Earth is oxygen found?
11. Respiration that uses oxygen to release the _____ in carbohydrates is called _____ respiration. Respiration that does not use oxygen is called _____ or _____. Many animals and plants are capable of _____ types of respiration.

Chapter 4.3 - The Nitrogen Cycle

1. In living organisms, nitrogen is used to make _____ and _____, which both make up DNA.
2. The most abundant source of nitrogen is in the _____, however it is not usable in this form to most organisms. Certain _____, fortunately, are capable of converting the nitrogen in the air into another form of nitrogen called _____ for the soil. This process is known as _____. The bacteria that carry out this process are typically found in certain plants called _____.

3. Excess ammonia in the soil that is not used by plants or bacteria is dissolved in water and forms _____.
4. Most plants need both _____ and _____ ions for optimal growth. The process by which bacteria convert ammonium ions into nitrate ions is called _____.
5. When plants and animals die they are _____ and the nitrogen compounds within them are transferred to the soil.
6. The process by which bacteria convert ammonia and nitrate back into nitrogen gas is known as _____.
7. Insect-eating ants can survive in _____ areas as they receive the necessary compounds from the insects they consume.

Chapter 4.5 - The Phosphorus Cycle

1. How do organisms use phosphorus?
2. Unlike nitrogen and carbon, phosphorus is not found in the _____. All phosphorus originates from _____ of sedimentary and metamorphic rocks. When the phosphorus dissolves in water it forms _____ ions that many producers can absorb.
3. Explain the short and long phosphorus cycles.
4. _____ are fungi that increase the solubility of phosphate, making it more readily available for the plant.
5. How do human activities contribute phosphorus to ecosystems?

Vocabulary to Know

Write a concise definition of each of these terms found in this chapter.

Adaptation -

Adaptive radiation -

Biodiversity -

Biome -

Boreal Forest -

Carbon sink -

Carbon source -

Cellular respiration -

Climate -

Climatograph -

Climax community -

Competition -

Denitrification -

Desert -

Ecological succession -

Elevation -

Extinction -

Extirpation -

Foreign species -

Fossil fuel -

Grassland -

Greenhouse effect -

Greenhouse gases -

Inorganic -

Keystone species -

Latitude -

Mimicry -

Natural selection -

Nitrification -

Nitrogen fixation -

Niche -

Organic -

Photosynthesis -

Polar Ice -

Primary succession -

Secondary succession -

Temperate deciduous forest -

Temperate rainforest -

Tropical rainforest -

Tundra -